REMARKS

This application has been carefully reviewed in light of the Office Action dated April 26, 2010. Claims 1, 4 to 7 and 10 to 15 are in the application, with Claims 1, 7 and 12 being independent. Claims 1, 7 and 12 have been amended. Reconsideration and further examination are respectfully requested.

In the Office Action, Claims 1, 4 to 7 and 10 to 15 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 7,853,465 (Ohnishi) in view of U.S. Patent No. 6,490,055 (Shimizu). Reconsideration and withdrawal are respectfully requested.

Independent Claim 1 as amended generally concerns a printing control apparatus for outputting print data and executing printing. The printing control apparatus comprises storage means, to which rendering instructions are input, for storing the rendering instructions page by page, processing means for performing color processing and n-value conversion processing of the rendering instructions stored in the storage means, and first rendering means for developing the rendering instructions of each scan line into multivalued bitmap data, performing color processing of the multivalued bitmap data and converting the color processed multivalued bitmap data to n-valued bitmap data, wherein the number of bits associated with the multivalued bitmap data is greater than n. The printing control apparatus further comprises second rendering means for performing rendering processing by pasting n–valued data converted by the n-value conversion processing into an object corresponding to the rendering instructions to generate n-valued bitmap data, and determining means for reading out the rendering instructions that have been stored in the storage means and determining whether the rendering instructions include a rendering instruction other than overwriting for each scan line after the

processing means has processed the rendering instructions. In addition, the printing control apparatus comprises control means for extracting edges of objects in the rendering instructions in each scan line and exercising control so as to cause the first rendering means to render the multivalued bitmap data between the edges to convert into the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions include a rendering instruction other than the overwriting for a scan line, and to cause the second rendering means to generate the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions do not include a rendering instruction other than the overwriting for the scan line. The control means causes the first rendering means or the second rendering means to develop the rendering instructions into the n-valued bitmap data line by line. A phase at the time of conversion to the n-valued bitmap data by the first rendering means is made to conform with a phase at the time of generation of the n-valued bitmap data by the second rendering means, such that irregular rendering is suppressed in switching between the first rendering means and the second rendering means.

Thus, among its many features, Claim 1 provides for (i) control means for extracting edges of objects in the rendering instructions in each scan line and exercising control so as to cause the first rendering means to render the multivalued bitmap data between the edges to convert into the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions include a rendering instruction other than the overwriting for a scan line, and to cause the second rendering means to generate the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions do not include a rendering instruction other than

the overwriting for the scan line, and that (ii) a phase at the time of conversion to the n-valued bitmap data by the first rendering means is made to conform with a phase at the time of generation of the n-valued bitmap data by the second rendering means, such that irregular rendering is suppressed in switching between the first rendering means and the second rendering means.

By virtue of the foregoing, it is possible to perform rendering at high speed because of pasting n-valued data converted by the n-value conversion processing into an object corresponding to the rendering instructions, if the rendering instructions do not include a rendering instruction other than the overwriting for the scan line. In addition, it is possible to suppress the irregular rendering in switching between the first rendering means and the second rendering means.

Turning to the applied references, Ohnishi and Shimizu are not seen to disclose or suggest at least foregoing features (i) and (ii), nor the attendant benefits provided thereby.

As understood by Applicants, Ohnishi discloses a method for developing a drawing command into a multi-value bitmap image, and performing color processing on the multi-value bitmap image. See Ohnishi, step S26-10 and step S26-21 of Figure 26.

However, Ohnishi is not seen to disclose or suggest (i) control means for extracting edges of objects in the rendering instructions in each scan line and exercising control so as to cause the first rendering means to render the multivalued bitmap data between the edges to convert into the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions include a rendering instruction other than the overwriting for a scan line, and to cause the second rendering

means to generate the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions do not include a rendering instruction other than the overwriting for the scan line. Moreover, Ohnishi is not seen to disclose or suggest that (ii) a phase at the time of conversion to the n-valued bitmap data by the first rendering means is made to conform with a phase at the time of generation of the n-valued bitmap data by the second rendering means, such that irregular rendering is suppressed in switching between the first rendering means and the second rendering means.

Shimizu is not seen to compensate for the deficiencies of Ohnishi. In this regard, Shimizu is seen to disclose two types of rendering, one being a band rendering and the other being a degrade rendering. If an amount of input image is too large, then the banding process is carried out and the rendering to the band is executed. Furthermore, Shimizu is seen to check a state flag to determine a fast rendering with hardware such as overwriting. If the state flag designates a high grade logical drawing, then the software rendering is executed.

The Office Action is seen to compare the fast rendering and the software rendering of Shimizu with the claimed second rendering means and first rendering means, respectively. However, Shimizu is not seen to disclose or suggest foregoing features (i) and (ii).

Claim 1 is therefore believed to be allowable over the applied references.

In addition, independent Claims 7 and 12 are method and printer driver claims, respectively, which generally correspond to apparatus Claim 1. Accordingly, Claims 7 and 12 are believed to be allowable for the same reasons.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the claims, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

No fees are believed due; however, should it be determined that additional fees are required, the Director is hereby authorized to charge such fees to Deposit Account 06-1205.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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